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UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Marketing Service, Grain Division  
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EUPHORBIACEAE

Acalypha; Caperonia; Croton; Crotonopsis; Euphorbia; Phyllanthus 1/

- 1a. Seed enclosed in an indehiscent capsule. Capsule broadly elliptic with persisting style remnant and short-stalked base, both sides convex, thickest about midway or lower, the tip flattened; light brown or greenish with adhering whitish, fringed scales. Seed without caruncle.

Length  $2-2\frac{1}{4}$  mm., width 2 mm. - - Crotonopsis linearis, crotonopsis (not illus.).  
Length  $3-3\frac{1}{4}$  mm., width  $2\frac{1}{4}-2\frac{1}{2}$  mm., Crotonopsis elliptica, crotonopsis (not illus.).

- 1b. Seed free from capsule. Ventral side with a dark line or groove (the raphe) extending full length of seed; hilum in a flattened area at the base, which may lie in an oblique or vertical position; chalaza a prominent flattened area at the tip, except in 2a, 5b, 11a, 15b and 18b; caruncle present or absent.

- 2a. Caruncle linear, persisting, attached from the pointed end to about  $\frac{1}{3}$  to  $\frac{1}{2}$  the length of the seed, obscuring the hilum; chalaza an inconspicuous point; color grayish or dark brown, and spotted with darker brown in 3a.

- 3a. Narrowly obovate, surface so finely reticulate it appears smooth; length  $1\frac{1}{2}$  mm., width  $1-1\frac{1}{4}$  mm.  
- - - - - Acalypha virginica, three-seeded mercury (fig. 479).

- 3b. Broadly obovate, surface with wart-like protuberances; length 2 mm., width  $1\frac{3}{4}$  mm.  
- - - - - Acalypha ostryaefolia, hornbeam three-seeded mercury (not illus.).

- 2b. Caruncle cap-like, elevated, easily detached in processing, flattened and persisting in 8a, 13a and 16b, or lacking in 5b.

- 4a. Seeds small,  $1\frac{1}{2}$  mm. long or less, distinctly angled; surface variously configured, dull.

- 5a. Seeds roughly quadrangular, slightly flattened in 9b. (Con. p.2)

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1/ A seed key to some of the more common species occurring as field weeds. The morphological features described are visible at magnifications of 6X and 20X.

The figure numbers in parentheses refer to illustrations in U.S.D.A. Handbook no. 30, 1952, Testing Agricultural and Vegetable Seeds.

5a. Seeds roughly quadrangular, slightly flattened in 9b.

6a. Length 1 mm., width  $\frac{1}{2}$  mm., chalazal area prominent; color pale grayish brown or reddish brown.

7a. Each face with 3 or 4 obscure transverse ridges.

--- Euphorbia supina, spotted spurge (fig. 488).  
(E. maculata)

7b. Each face faintly pitted, the pits in no definite pattern.

--- Euphorbia serpyllifolia, thymeleaf spurge (not illus.).

6b. Length  $1\frac{1}{2}$  mm., width  $\frac{3}{4}$  - 1 mm., chalaza obscure except in 9b.

8a. Surface pitted. The two dorsal faces each with two rows of 3 or 4 deep pits, the two ventral faces each with one deep longitudinal depression; color silvery gray, the pits reddish; caruncle persisting.

--- Euphorbia peplus, petty spurge (not illus.).

8b. Surface grooved or lined.

9a. The four faces with coarse anastomosing lines; three angles blunt, smooth and lighter colored, the fourth angle grooved or with a dark line; color dark brown or charcoal.

--- Euphorbia nutans, nodding spurge (fig. 487).  
(E. preslii)

9b. The four faces each with 4 or 5 deep transverse grooves; slightly flattened but distinctly angled; color grayish or charcoal.

--- Euphorbia falcata, sickle spurge (not illus.).

5b. Seeds wedge-shaped, without caruncle, dorsal side strongly convex, ventral side with median angle, the two faces plane; chalazal point and raphe somewhat obscure; color reddish brown.

10a. Surface with longitudinal rows of minute dark brown tubercles; length 1 mm., width  $\frac{1}{2}$  mm.

----- Phyllanthus caroliniensis, Carolina phyllanthus (not illus.).

10b. Surface with minute transverse lines and scattered black-tipped tubercles; length  $1\frac{1}{2}$  mm., width  $1\frac{1}{4}$  mm.

----- Phyllanthus polygonoides, knotweed phyllanthus (not illus.).

4b. Seeds large, 2-4 mm. long, neither quadrangular nor wedge-shaped.

11a. Seeds lustrous or glossy; broadly oval or orbicular, slightly flattened, both sides convex with a distinct angle around the periphery; the chalaza an inconspicuous point; raphe prominent; caruncle, if present, cap-like, elevated. See fig. 480.

12a. Surface minutely stippled; light brown, sparingly spotted with dark brown or black; length 3 mm., width  $2\frac{1}{2}$  -  $2\frac{3}{4}$  mm.

----- Croton glandulosus, glandular croton (not illus.).

12b. Surface slightly roughened by minute broken lines; light reddish brown to dark grayish brown; length 4 mm., width  $3\frac{1}{4}$  mm.

----- Croton capitatus, woolly croton (not illus.).

11b. Seeds dull. (Con. p. 3)

11b. Seeds dull.

13a. Surface so minutely reticulate it appears smooth; shape oblong-cylindrical, broadly so in 14b; raphe and chalaza prominent; hilar area in nearly vertical position; caruncle mostly persisting.

14a. Light to dark grayish brown, usually with minute, dark brown flecks.

- - - - - Euphorbia esula, leafy spurge (fig. 483).
- - - - - Euphorbia lucida, shining spurge (not illus.).

14b. Silvery gray with bluish cast, not flecked or mottled.  
- - - - - Euphorbia cyparissias, cypress spurge (not illus.).

13b. Surface lightly to markedly roughened; hilar area in oblique position.

15a. Seeds broadly obovate, rotund.

16a. Surface porous, chalky gray, light brown or spotted with dark brown; chalaza a prominent flat spot; caruncle lacking.

17a. Surface slightly roughened by an irregular network of obscure, coarse lines and pointed elevations.  
- - Euphorbia marginata, snow-on-the-mountain (fig. 486).

17b. Surface obscurely pitted, the pits broad and shallow, sometimes so lightly pitted it appears merely mottled with brown.  
- - Euphorbia corollata, flowering spurge (fig. 482).

16b. Surface markedly roughened and minutely stippled, dark colored; caruncle persisting.

18a. Dark reddish brown with whitish wart-like protuberances; chalaza a prominent flat spot; raphe a distinct black line; the round caruncle covers only about one-half of the hilar area.  
- - Euphorbia dentata, toothed spurge (fig. 486).

18b. Dark brown, with prominent network of thin reticulations; chalaza an inconspicuous point; raphe a prominent raised line; the kidney-shaped, flat caruncle covers the entire hilar area.  
- - Euphorbia helioscopia, sun spurge (fig. 485).

15b. Seeds spherical, diameter  $2\frac{1}{2}$  -  $2\frac{3}{4}$  mm., light grayish brown to dark brown, with adhering scurfy flecks and a minute reticulum of fine lines; chalaza an inconspicuous point; raphe extends about half-way around the seed.  
- - - - - Caperonia palustris, caperonia (not illus.).







